CLAIMS

1. A method of producing a thin film heating element, comprising the steps of:

masking a surface of a material except a heat generating portion with heat- and oil-resistant ink and allowing the ink to run dry;

preheating the material and spraying a conductive composition for the thin film heating element on a surface of the preheated material using clean air as a carrier to form a conductive thin film for the thin film heating element;

removing the ink from the material by water cleaning;

printing the conductive thin film for the thin film heating element with a conductive thin film for an electrode and then drying the conductive thin film for the electrode; and

baking the material.

2. The method as claimed in claim 1, wherein the conductive composition for the thin film heating element consists of 15 to 20 wt% of tin (IV) chloride, 1 to 1.5 wt% of antimony chloride, 10 to 15 wt% of hydrochloric acid, 1 to 1.5 wt% of indium chloride and 55 to 60 wt% of distilled water.

3. The method as claimed in claim 1, wherein the material is transparent glass or ceramic having thermal resistance and a low thermal expansion property.

4. The method as claimed in claim 1 or 3, wherein the material is preheated to a temperature of 500 to 800℃.

5. The method as claimed in claim 1 or 3, wherein the

material has a thermal expansion coefficient less than 3 × 10^{-6}/℃ at a temperature of 0 to 300℃.

6. The method as claimed in claim 1, wherein the conductive thin film for the heating element has an electric resistance of 10 to 1000Ω /square.

7. The method as claimed in claim 1 or 6, wherein the conductive thin film for the heating element has a thickness of 500 to 5000Å.

8. The method as claimed in claim 1, wherein the conductive thin film for the electrode comprises silver.

9. A heating device using a thin film heating element, comprising:

a pair of frames opposed to each other;

a plurality of flat substrates which are horizontally mounted at one side of each of the frames and spaced apart from each other at predetermined intervals;

a heat generating portion consisting of the thin film heating element formed on a surface of each of the substrate according to the method of claim 1; and

a blowing means installed at the other side of each of the frames for blowing air to the heat generating portion.

10. A heating device using a thin film heating element, comprising:

a pair of frames opposed to each other;

a plurality of tubes which pass through and are mounted to the frames;

a heat generating portion consisting of the thin film heating element formed on each of the tubes according to the

method of claim 1; and

a blowing means installed at an outer side of any one of the frames for blowing air to the heat generating portion.

11. A heating device using a thin film heating element, comprising:

an inner container having an upper inlet port through which liquid can be introduced and a lower drain port for discharging the liquid;

an outer container surrounding the inner container with a predetermined gap formed therebetween so as to define a channel through which the liquid discharged from the drain port of the inner container can flow, an upper end thereof being integrally formed with that of the inner container, an upper portion thereof being formed with a drain port through which the liquid flowing along the channel can be discharged; and

a heat generating portion including the thin film heating element formed on an outer surface of the outer container according to the method of claim 1.